

ABSTRACT

A novel spatial light modulator system has a high fill factor MEMS array of tilting mirrors used to attenuate wavelength channels in an optical network and an interface control circuit controlling the tilting mirror array via received control signals. The control signals include definitions of the wavelength channels and desired attenuation. This control circuit may or may not be on the same chip as the mirror array. Each mirror is supported by one or more flexures, located symmetrically or asymmetrically with respect to the mirror's center of gravity, providing single-axis or two-axis rotation. Stiffener ribs at mirror edges provide a flatter mirror. Landing electrodes held at the same potential as the mirror prevent stiction, while strain relief slots relieve stress on the mirror or flexures. Mirrors fabricated from polysilicon or metal are polished flat using a CMP technique. This SLM design is non-interferometric, therefore increased angular tilt provides increased attenuation.